Turnip

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Scientific Name and Introduction: Turnips *(Brassica campestris*, Group Rapaceum) are often confused with rutabaga or swede (*B. Napus*, Group Napobrassica). Turnips have a small, white-fleshed root, often with the surface of the top-half purple, and hairy leaves. Roots can be grown in warm soils > 25 °C (77 °F) (Peirce, 1987). In contrast, rutabagas have large yellow-fleshed roots and large, smooth leaves; they grow in cool soils. There are also yellow-flesh turnips. Common turnip varieties are Purple Top, White Globe, White Egg, and Golden Ball.

Quality Characteristics and Criteria: High quality turnips are firm, free of growth cracks, woodiness, rot, injury, and pithiness.

Horticultural Maturity Indices: Root diameter and freedom from woodiness are maturity indices for turnips. If sold as topped turnips, roots should be at least 4.4 cm (1.75 in) in diameter.

Grades, Sizes and Packaging: Grades of U.S. No. 1 and U.S. No. 2 are based primarily on external appearance, size and defects. U.S. Grade 1 roots are well trimmed, firm, fairly smooth and clean, free from injury, growth cracks, woodiness, water core, dry rot, and soft rot. The roots should have a minimum diameter of 4.4 cm (1.75 in). Turnips are sold bunched with tops not less than 15 cm (6 in) long, short-trimmed roots with tops not more than 10 cm (4 in) long, and topped turnips with tops removed to not more than 2 cm (0.75 in). Some roots are waxed, but most are packaged as fresh roots and leaves, or topped, and packed in vented plastic film or mesh bags. Bags may be 11.4 or 22.7 kg (25 or 50 lb) or 0.45 kg (1 lb) bags packed 12 per carton.

Pre-cooling Conditions: Can be cooled in wash water, but temperature differential of 10 °C (50 °F) or more should be avoided to prevent cracking.

Optimum Storage Conditions: Turnips can be held 4 to 5 mo at 0 °C (32 °F) with 90 to 95% RH.

Controlled Atmosphere (CA) Considerations: Unknown.

Retail Outlet Display Conditions: Maintain high RH. Refrigerate to slow shrivel. Can mist.

Chilling Sensitivity: Turnips are not sensitive to chilling temperatures and should be stored as cold as possible without freezing.

Ethylene Production and Sensitivity: Turnip roots are insensitive to ethylene and produce no detectable ethylene.

Respiration Rates:

Temperature	mg CO_2 kg^{-1} h^{-1}
0 °C	6 to 9
5 to 6 °C	10
10 °C	13 to 19
15 to 16 °C	21 to 24

20 to 21 °C 24 to 25

To get mL kg^{-1} h^{-1}, divide the mg kg^{-1} h^{-1} rate by 2.0 at 0 °C (32 °F), 1.9 at 10 °C (50 °F), and 1.8 at 20 °C (68 °F). To calculate heat production, multiply mg kg^{-1} h^{-1} by 220 to get BTU per ton per day or by 61 to get kcal per metric ton per day. Data are from Smith (1957) and Scholz et al. (1963).

Physiological Disorders: Turnips can develop growth cracks from over-maturity or boron deficiency, brown heart from boron deficiency, and pithiness from water stress (Snowdon, 1992). Root shriveling and loss of firmness can occur from storage at > 2 °C (35.6 °F) or at low RH.

Postharvest Pathology: Dry rot or phoma rot (*Leptospharia maculans*), watery soft rot (*Sclerotina minor* or *S. scerotiorum*), alternaria rot (*Alternaria brassicae*), rhizoctonia rot (*Thanatephorus cucumeris*), gray mold (*Botrytis cinerea*) and bacterial soft rot *(Erwinia crotovora* ssp. *carotovora*) can occur in harvested roots, generally resulting from field infection.

Quarantine Issues: None known.

Suitability as Fresh-cut Product: May be peeled and diced as a fresh market pre-cut (Snowdon, 1992).

Special Considerations: Turnips are susceptible to freezing damage when held at 0 °C (32 °F). Storage at warmer temperatures, > 5 °C (41 °F) accelerates weight loss and development of soft rot. Waxing roots with a water-miscible, carnauba-based wax slightly delays weight loss and intensifies the purple color of the roots (Perkins-Veazie and Collins, 1991).

References:

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